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CORRESPONDENCE

On *Jungicephus* Maa (Hymenoptera: Cephidae) with description of a new species from China

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Abstract *Jungicephus* Maa, 1949 is redescribed based on new material. The differences between *Jungicephus* and its relatives, and the tribal position of the genus are briefly discussed. *Jungicephus* maybe represent a distinct evolutionary lineage in Hartigiini in addition to the *Hartigia* lineage and *Janus* lineage. A new species, *J. bidentus* **sp. nov.** is described from China.

Key words Cephidae, Hartigiinae, new species, Pachycephini, China.

Jungicephus Maa, 1949 is a very small genus of Cephidae with only one extant species, *J. mandibularis* Maa, 1949 (Wei *et al*., 2006; Taeger *et al*., 2010). The genus is endemic to China and very rare. The type species of the genus was described by Maa (1949) sixty-four years ago based on a female collected from Chahar (now Zhangjiakou Region of Hebei Province), China. No more specimen was collected till the senior author collected a male specimen of the species from Henan Province in 1996.

In surveys of the sawfly fauna of central and northern China in the past 15 years, we collected some specimens of *Jungicephus* from Shaanxi, Beijing, Henan and Chongqing, which are represent an undescribed species of the genus.

The type specimens of the new species are deposited in the Insect Collection of Central South University of Forestry and Technology, Changsha, Hunan, China (CSCS).

Specimen images were taken using a digital camera with a series of images montaged using Helicon Focus (©HeliconSoft). Terminology of sawfly genitalia follows Ross (1945), and terminology of wing venation follows Niu & Wei (2010).

***Jungicephus* Maa, 1949**

Jungicephus Maa, 1949: 21, by original designation. Type species: *Jungicephus mandibularis* Maa, 1949: 22.

Description. Mandibles robust, left mandible hardly 2 times as long as its middle breadth and clearly broader than distance between anterior tentorial pit and torulus, with 2 large teeth, inner tooth strongly shouldered and about as long as outer tooth (Fig. 6); maxillary palp with 5 palpomeres, 3rd palpomere not enlarged and as long as or shorter than 5th palpomere (Fig. 4); labial palp with 3 palpomeres, third palpomere with a distinct sensory pit (Fig. 5); head quite broad and low in frontal view, distance between antennal sockets 1.5 times as long as distance between antennal socket and tentorial pit on same side, and also about 1.5 times as long as distance between antennal socket and inner margin of eye (Figs 2, 13); supraclypeal area weakly elevated, without middle keel or carina; malar space longer than diameter of front ocellus; eyes medium-sized, inner margins parallel, shortest distance between eyes 1.5 times height of an eye (Figs 2, 13); OCL about 2.5 times POL, OOL 2 times POL; occipital carina extending to upper part of hind orbit; head about as broad as thorax, subparallel or weakly narrowed

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behind eyes in dorsal view. Antenna filiform, with 21–23 antennomeres, flagellum of equal width throughout from 5th antennomere, 3rd and 4th antennomeres slightly thinner than other antennomeres; 2nd antennomere slightly broader than long, 3rd antennomere clearly longer than 4th antennomere, 4th antennomere shorter than 5th. Pronotum short, distinctly concave at middle transversely, about 2 times as broad as long in dorsal view and strongly oblique in lateral view; mesoscutellum broadly diamond shaped, much shorter than broad (Fig. 12); upper of mesepisternum with a long and deep transverse furrow. Middle tibia with 1 pre-apical spur; hind tibia as long as hind tarsus with 2 pre-apical and 2 apical spurs; metabasitarsus slender, slightly longer than following 3 tarsomeres together; claw short and broad, with an acute basal lobe, inner tooth longer and broader than outer tooth (Figs 7–8). Forewing (Fig. 9) with cell 2R1 normal, vein 1r joining pterostigma at base, 2r joining pterostigma at middle; pterostigma narrow and long, vein 2A separated from vanal fold about 3–4 times breadth of vein 2A; hind wing with 7–10 apical hamuli on dorsal margin of cell R1 and 7–10 small and sparse basal hamuli, cell Rs and M closed (Fig. 10). Abdomen strongly compressed laterally, lateral lobes of 1st tergum not merged at middle (Fig. 12), 2nd segment short, 2.5 times as high as long in lateral view; ovipositor sheath longer than hind tibia, weakly curved up ventrally, almost straight, apical sheath much shorter than basal sheath (Fig. 11); cercus about 0.25 times length of apical sheath. Lancet simple and slender, with 3 apical annular sutures, annular ctenidia absent, serrulae tapering toward apex, without fine subbasal teeth; about apical half of lance with dorsal teeth.

Distribution. North China.

Discussion. Maa (1949) stated the “maxillary palpi (of *Jungicephus*) with segments III subequal in length to the IV or VI; the VI originating near the base of its preceding segment (Text-fig. 3)”. However, the text Fig. 3 in Maa (1949) clearly shows that the maxillary palp is 5-segmented. The maxillary palp with 5 palpomeres is confirmed by our study of additional specimens.

Jungicephus can be easily recognized by maxillary palp with 5 palpomeres and labial palp with 3 palpomeres; the distance between toruli much longer than the distance between torulus and tentorial pit; the 4th antennomere shorter than the 3rd and 5th antennomeres; mesepisternum with a deep dorsal transverse furrow; left mandible very broad and the inner tooth with a distinct shoulder, ovipositor sheath weakly curved upwards in lateral view.

Maa (1949) emphasized that *Jungicephus* "can be readily recognized from all other Cephid-genera by the shape of its left mandible". The new species described below shows that this statement is not true.

Maa (1949) and Muche (1981) placed *Jungicephus* into the tribe Hartigiini of Cephidae. However, *Jungicephus* is much different from known genera of Hartigiini by the reduced maxillary and labial palpi, the distance between toruli much longer than distance between torulus and anterior tentorial pit, the upper part of mesepisternum with a deep transverse furrow, the 4th antennomere shorter than the 5th antennomere, the diamond-shaped mesoscutellum, and the weakly curved up ovipositor sheath.

Jungicephus is somewhat similar to *Pachycephus* of Pachycephini, Cephinae by following characters: the distance between toruli much longer than distance between torulus and anterior tentorial pit; the upper part of mesepisternum with a deep transverse furrow; the diamond mesoscutellum, the short and high second abdominal tergite and venation. But *Jungicephus* differs distinctly from *Pachycephus* by the followings: long and slender antenna with the 4th antennomere shorter than the 5th antennomere; maxillary palp with 5 palpomeres and labial palp with 3 palpomeres; the inner tooth of the left mandible as long as outer tooth and with a distinct shoulder; abdomen strongly compressed laterally, and ovipositor sheath long and slightly curved up; claw with a sharp basal lobe and a large inner tooth.

Jungicephus might be related to *Janus* complex of Hartigiini by the short and broad claw with a sharp basal lobe and a large inner tooth (Wei & Nie, 1996). But considering some similarity between *Jungicephus* and *Pachycephus*, it is possible that *Jungicephus* represents a distinct evolutionary lineage of Hartigiini in addition to the *Hartigia* lineage and *Janus* lineage. It is necessary to reconstruct the generic phylogeny of Cephidae using cladistic analysis before we can confirm the tribal position of *Jungicephus*.

There are two species in *Jungicephus*, including a new species described here. They can be separated by the following key.

Key to species of *Jungicephus* Maa, 1949.

1. Outer tooth of left mandible with a small but sharp inner tooth; 5th maxillary palpomere distinctly shorter than 3rd palpomere, 3rd maxillary palpomere 2.5 times as long as 4th palpomere; vein 2A angulated at basal corner, and being separated from vanal fold about 4 times breadth of vein 2A; lancet with 10 teeth (serrulae); frons with a deep and broad middle furrow; body punctuation fine and close all over, though sparser on vertex and scutellum.....***J. mandibularis* Maa, 1949**

   Outer tooth of left mandible without a small inner tooth (Fig. 6); 5th maxillary palpomere distinctly longer than 3rd palpomere (Fig. 4), 3rd maxillary palpomere 1.3 times as long as 4th palpomere; vein 2A roundly bent near basal corner, and being separated from

vanal fold about 3 times breadth of vein 2A (Fig. 9); lancet with 13 teeth (serrulae); frons almost flat, with a very shallow middle furrow; temple very finely punctured, mesoscutum densely punctured, mesoscutellum polished, hardly punctuate..... .....***J. bidentus* sp. nov.**

***Jungicephus bidentus* sp. nov.** (Figs 1–14)

Female. Body length 10.5 mm (Fig. 1). Body black, a cross band near base of mandibles (Fig. 6), a stripe on lower inner orbit, a strongly curved cross band on supraclypeal area (Fig. 2), a small macula on posterior orbit, a central spot on mesoscutellum (Fig. 12), posterior band on abdominal tergites 5–6, posterior corner of tergite 7, a small spot below spiracle of tergite 8, small middle spot on tergites 9–10, shiny yellow. Legs black, a large spot on outer side and a small spot on ventral apex of hind coxa, apex of fore and middle femora and apical 3/4 of hind femur shiny yellow, tibia and tarsus of fore and middle legs yellowish brown, apical third of hind tibia and hind tarsus entirely dark brown. Wings hyaline, base of vein C brown, other veins and pterostigma blackish brown. Hairs on dorsal side of head and thorax dark brown, hairs on mesopleuron pale brown.

Body shiny. Supraclypeal area feebly coriaceous, clypeus and mandibles densely and coarsely punctured, temple and postocellar area minutely and sparsely punctured, frons and upper inner orbit hardly punctured; anterior half of pronotum polished, without punctures or sculpture, posterior half evenly punctured; scutum densely punctured, shiny; mesoscutellum hardly punctured, smooth and strongly shiny; center of metapostnotum densely microsculptured; mesepisternum feebly microsculptured, upper transverse furrow densely microsculptured; first and second abdominal terga largely polished, impunctate, lateral sides of tergites 1–2 and all other tergites densely punctured.

Malar space 1.25 times diameter of lateral ocellus; left mandible as Fig. 6; 5th maxillary palpomere 1.15 times as long as 3rd palpomere (Fig. 4), 3rd palpomere 1.3 times as long as 4th palpomere; labial palp as Fig. 5; head in front view as Fig. 2, frons with a broad and very shallow middle furrow; postocellar furrow fine and shallow, interocellar furrow and lateral furrows absent; POL: OOL: OCL=17: 10: 5; temple shorter than eye in dorsal view and distinctly narrowed backwards, posterior margin of head distinctly concave (Fig. 3). Antenna with 23 antennomeres, third antennomere 1.3 times as long as fourth antennomere. Posterior margin of pronotum shallowly incised; mesoscutellum 1.3 times broader than long, anterior margin roundly protruding (Fig. 12). Forewing with cell 2Rs as long as 1Rs, vein 2A roundly bent at basal corner, and being separated from vanal fold about 3 times breadth of vein 2A (Fig. 9). Claw as Fig. 7. Abdominal tergum 1 as Fig. 12; ovipositor sheath as Fig. 11, apical sheath 0.53 times as long as basal sheath. Lance simple, slightly curved up with 12 small dorsal dents in apical half; lancet simple, distinctly curved up with 13 oblique dents in apical 4/7.

Male. Body length 8.5–10.5 mm. Color and structure similar to female except facial macula larger (Fig. 13), mesoscutellum entirely black, abdominal tergites without yellow band, posterior corner of 4th–8th tergites with yellow macula, posterior margin of abdominal sternites 4–8 yellow; claw as Fig. 8; 8th sternite deeply and roundly incised, posterior margin of sternite 9 shallowly incised (Fig. 14).

Variation. Antennomeres varies from 21 to 23.

Distribution. China (Beijing, Shaanxi, Henan, Chongqing).

Etymology. The specific epithet refers to the two teeth of the left mandible.

Holotype. ♀, Chongqing, Nanchuan, top of north slope of Mt. Jinfo (29˚01'55"N, 107˚11'09"E; elev. 2 100 m), 1.VII. 2012, coll. Meicai Wei, Gengyun Niu. Paratypes. 8♂, same data as the holotype; 1♂, Shaanxi, Zhouzhi, Louguantai (34˚02'939"N, 108˚19'18"E; elev. 899 m), 25.V.2006, coll. Xun Zhu; 1♂, Henan, Songxian, 19.VII.1996, coll. Meicai Wei; 1♀, Beijing, Xiaolongmen, 29.VII.1984, coll. Hong Huang.

Host plant. Unknown.

Remarks. See the above key for the differences between the new species and the type species of the genus.

***Jungicephus mandibularis* Maa, 1949**

Jungicephus mandibularis Maa, 1949: 22.

Specimen examined. No specimen has been examined by the authors. The type depository of the species is unknown.

Distribution. China (Hebei).

Discussion. Maa (1949) described and figured this species in detail based on a female collected from Chahar (now Zhangjiakou Region of Hebei Province). But he did not mention the type depository and the number of the specimens that he examined. We wrote letters to some universities in Taiwan Province, where Dr. Maa ever worked, and tried to find the type of the species, but got no reply.

Because Maa's works on sawfly taxonomy are usually reliable, and the original description and the figures of

Jungicephus mandibularis Maa are good enough for judgement of the species, there is no reason to doubt the reliability of the species.

See the key above for the differences between *Jungicephus mandibularis* Maa and the new species.

Figures 1–14. *Jungicephus bidentus* **sp. nov.** 1. Adult female, dorsal view. 2. Female head, frontal view. 3. Female head, dorsal view. 4. Maxillary palp. 5. Labial palp. 6. Left mandible. 7. Female claw. 8. Male claw. 9. Fore wing. 10. Hind wing. 11. Ovipositor sheath. 12. Mesoscutellum and propodeum. 13. Male head, frontal view. 14. Apical two sternites in male, ventral view.

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